

**AN INVESTIGATION INTO THE INTERNAL STRUCTURE UNDERLYING  
THE ORGANISATIONAL DIAGNOSTIC QUESTIONNAIRE (ODQ)**

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**Dr. W.S. de Villiers  
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**Declaration**

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

F.E. Kotzé

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**Hierdie tesis word opgedra aan my ouers, At en Marthie Koen.  
Baie dankie vir jare se liefde, toewyding en ondersteuning.**

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# **AN INVESTIGATION INTO THE INTERNAL STRUCTURE UNDERLYING THE ORGANISATIONAL DIAGNOSTIC QUESTIONNAIRE (ODQ)**

**Francina Elizabeth Kotzé**

## **ABSTRACT**

This study investigates the internal structure that underlies the ODQ. A structural model that explicates the nature of the causal linkages between the six main constructs comprising the ODQ was developed and tested. Data obtained from 273 employees in a chrome manufacturing plant was used. This research found that the proposed model offers a plausible account of the influences that exist between the six main constructs. The benefit of this structural model will be in the enhanced interpretation of the diagnostic results derived from the ODQ.

## **OPSOMMING**

Hierdie studie stel ondersoek in na die interne struktuur wat onderliggend is aan die Organisasie Diagnostiese Vraelys (ODV). 'n Strukturele model wat die onderliggende kousale verhoudings van die ses hoofkonstrukte van die ODV blootlê, is ontwikkel en getoets. Data van 273 werknemers, verbonde aan 'n chroom vervaardigingsaanleg, is gebruik. Die navorsing toon dat die voorgestelde model 'n aanneemlike weergawe is van die onderliggende verhoudings wat tussen die ses hoofkonstrukte bestaan. Die voordeel van die voorgestelde model lê daarin dat dit die interpretasie van resultate, wat uit die diagnose verkry is, kan verbeter.

The world and human existence within it, faces changes in all spheres of life. “In South Africa the economic, political, psychological, sociological, cultural and organisational foundations are all under extreme stress” (Coetsee, 1993, p. 1816). This became even more evident for South Africa after 1994 when the country started a competitive journey in a technologically advanced global economy.

The economy, technology and socio-political situation in which organisations function, are all environmental forces that demand rapid changes in organisations. In a well-functioning organisation, performance outcomes in terms of production and growth will be positive. If the organisation reacts in a dysfunctional way to these environmental forces of change, process and behavioural problems may occur. This may result in breakdowns in decision making and communication that will threaten the long-term survival of the organisation and paralyse the work force, resulting in absenteeism, high turnover and low morale (Gibson, Ivancevich & Donnelly, 1997, p. 451).

The true nature of people is to organise their world in a way that makes sense to them and to get accustomed to it. This natural human phenomenon often results in resistance to change. Resistance to change is not just evident in employees in general but can also be part of the management make-up that ought to play an important role in providing the vision, taking into account the changing world of work. An important part of the process of change includes the recognition phase during which management should acknowledge the compelling need to act. Once this need to act has been recognised, the exact nature of the problem must be diagnosed (Gibson et al., 1997, p. 452).

A thorough diagnosis of the real issues or prevailing problems is necessary. This is to determine where and what the organisation happens to be at the particular moment (Coetsee & Pottas, 1990, p. 44). Different methods that can be used are individual interviews, observations or an overview of organisational documents and records (Gibson et al., 1997, p. 453). Coetsee et al. (1990, p. 46) mention existing diagnostic instruments that measure dimensions of organisational behaviour. This study focused on the use of a

diagnostic questionnaire called the Organisational Diagnostic Questionnaire (ODQ) (Coetsee, 2002) of which the latest edition and update applies. This instrument seems to be widely recognised and used within the South African context. The analysis of the results of this questionnaire gives an indication of the strengths, weaknesses and core organisational problems of an organisation and of any specified subsystem of the organisation (Coetsee, 2002).

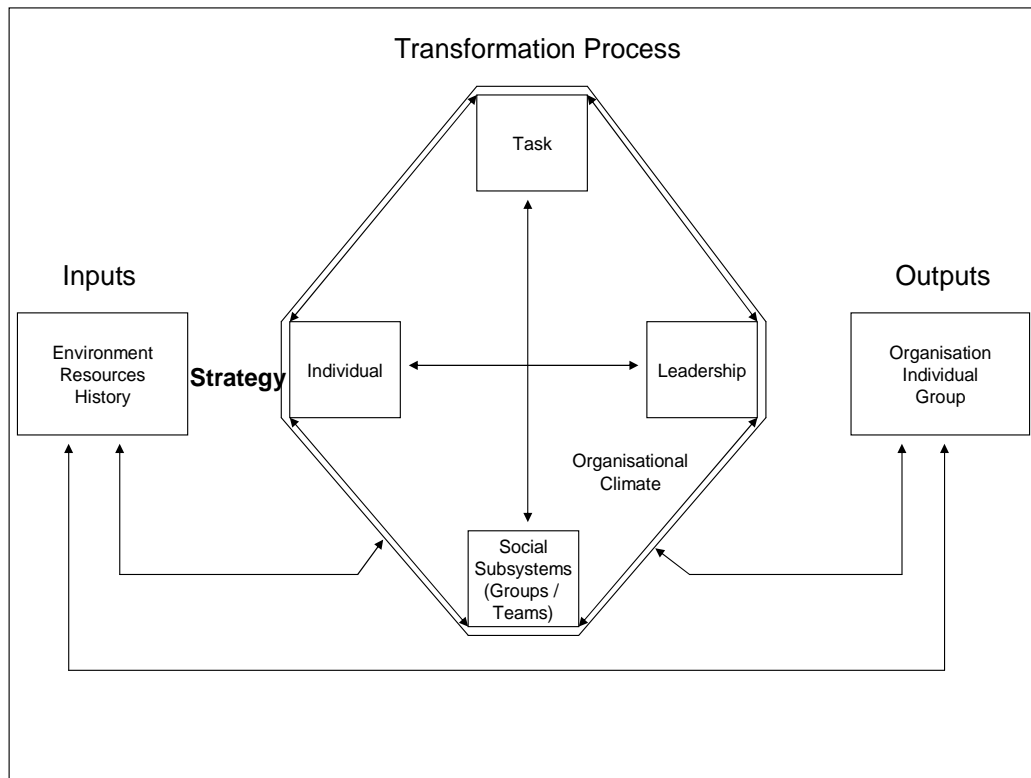
The ODQ is based on recognised organisational behaviour theories and scientific models such as the Nadler and Tushman (1977) Organisational Congruence model (Coetsee et al., 1990, p. 48). Coetsee et al. (1990, p. 45) refer to different organisational behaviour models and highlight the fact that all of these models focus on behavioural patterns of organisations, such as the nature of work, characteristics of individuals, the nature of groups and group functioning, the dimensions of organisational structures, how processes function, the elements of the environment in which the organisation functions and finally, the relationship between all of these subdimensions. The ODQ measures six main factors and 34 subfactors. For the purposes of this study, the focus will be on the six main factors: Organisational Climate, Team Functioning, Task Characteristics, Supervisory Leadership, Job Satisfaction and Aligned Commitment.

Each individual construct measured by the ODQ is valued for its own contribution in diagnosing the prevalent functioning of the organisation. However, it is to be believed that the whole is greater than the sum of its parts. This implies that the holistic understanding of the current situation would be improved if the focus were to be, not on the value added by individual constructs only, but rather took into account the inter-relatedness of such constructs (Skytter, 2002).

The ODQ is based on the Nadler and Tushman (1977) Organisational Congruence model (Figure 1) that was developed in 1975. Over the years, the ODQ has been re-evaluated in terms of item and factor analysis and, based on these analyses, adaptations and improvements have been made. The construct Aligned Commitment was only added to

the questionnaire in the year 2000. Neither Aligned Commitment nor Satisfaction Outputs is included in the Nadler and Tushman (1977) Organisation Congruence model. According to the author of the ODQ, both of these constructs can be seen as an output in terms of the Nadler and Tushman (1977) Organisation Congruence model (L.D. Coetsee, personal communication, 2 February 2004). The question is how the ODQ in its current form relates to the Nadler and Tushman (1977) Organisation Congruence model and whether the measured factors can be explained better by another model.

In an attempt to answer these questions, this study will develop a structural model that explicates the nature of the causal linkages between the six main constructs comprising the ODQ. This model will then be tested and compared to the Nadler and Tushman (1977) Organisational Congruence model.



**Figure 1: The Organisational Congruency Model (Nadler and Tushman, 1977, p. 92)**

Coetsee (2002) defines the ODQ constructs, in terms of the model, in the following way:

### **Organisational Climate**

“Organisational Climate refers to the conditions under which a work group or individual operates. It refers to the employee’s positive or negative experiences of his / her work environment. Organisational climate results from the philosophy, policies and actions of senior groups (leaders and managers).”

Organisational Climate has nine subfactors and is seen, in terms of the model, as the internal environment of the organisation. The subsystems include decision-making practices, communication flow, general motivating conditions, perceived quality of work environment, equipment and resources, goal clarity, interest in the wellbeing of employees, co-ordination, effectiveness of change management and effectiveness of labour relations and grievance procedures.

This construct is not part of the Nadler and Tushman (1977) Organisation Congruence model and was added by the authors of the ODQ in 1978. The authors are of the opinion that the interactions between the various subsystems depicted in the Nadler and Tushman (1977) Organisation Congruence model, takes place in a specific organisational atmosphere – the organisational climate. These interactions have an influence on the organisational climate and the organisational climate has an influence on the subsystems in return (L.D. Coetsee, personal communication, 2 February 2004).

### **Work Group / Team Processes (Team Functioning)**

“This factor refers to the extent to which members of work groups function effectively and work together as a team, achieve goals and are satisfied with each other.” The subsystems include team functioning, goal clarity, team support, the skills of the team, team cohesion and transparency, team goals and performance.



### **Task Characteristics**

“This factor refers to the inherent characteristics of a job. These inherent characteristics pertain to the motivation and job satisfaction of employees.” The subsystems are job challenge and meaningfulness, decision-making freedom, skills effectiveness, importance of work results / outputs and job satisfaction.

### **Management Leadership**

“This factor refers to the behaviour of a leader, manager or supervisor which may help or hinder the efforts of individual group members or the group / team as a whole in accomplishing their tasks. It also includes a measurement of the effectiveness of the leader, manager or supervisor.” The subsystems are production orientation, people orientation, team-building activities, the mentor role, as well as effectiveness of the managerial leader.

### **Satisfaction Outputs**

“This factor refers to job satisfaction, satisfaction with remuneration and satisfaction with the administration thereof, as well as the extent to which work-related stress is experienced.” The subsystems are organisational attachment, satisfaction with salary administration, pay satisfaction, pay equity and work-related stress.

### **Aligned Commitment**

“Aligned Commitment measures the extent to which employees are focussed on a shared vision – including the same overall goals – and the extent to which they are driven by an identical value system, and whether they have the necessary knowledge (training), information (communication) and whether they are sufficiently empowered, are rewarded and recognised by rewards and forms of recognition they value.” The subfactors are ownership of a shared vision and value system; being sufficiently informed; having the necessary skills and abilities; feeling empowered and experiencing participation; and experiencing the reward and recognition system as motivating.

A basic assumption of systems thinking is that everything is in relation to another (Skytter, 2002). This in itself implies that there is no real beginning or end, which leads to the complex question of *Where to start when faced with six constructs, and searching for causal linkages to develop the ultimate system comprising the ODQ?* Integration as defined by Muller-Merbach (1994, p. 19) is a systems approach in which the researcher inserts the parts about which insight needs to be obtained into a purposeful context until the whole is complete enough to be comprehensible.

Because of the important role that management has to play in the organisational development process, this research will start its investigation with the construct Managerial Leadership (**ML**). **ML** is defined by Coetsee (2002) as “the behaviour of a leader, manager or supervisor which may help or hinder the efforts of individual group members or the group / team as a whole in accomplishing their tasks.” According to Coetsee (2003, p. 59) some of the most popular ways of describing management (and supervision) are the following: “the planning, organising and control of a subordinate’s working activities” or “directing and influencing people to attain specific goals – achieving goals through people.” A modern view of management is “to make your team members successful.” Kolb (1996, p. 173) mentions that a leader’s effectiveness is often measured by the performance of his or her team. Managers cannot be successful any longer without being good leaders and leaders are far less effective if they cannot manage. The skills necessary for being effective as a leader are thus also required for being effective as a manager (Coetsee, 2003, p. 59).

How can **ML** ensure that team members are successful and how should **ML** plan, organise and control the working activities of team members to ensure that they are successful? These questions themselves already imply the possible influence that **ML** has on Task Characteristics (**TC**). Coetsee (2002) defines **TC** as “the inherent characteristics of a job.” According to Ford and Gillette (1969, p. 40), it is each leader’s job to provide his immediate subordinates with tasks that challenge them to the limits of their abilities. Depending on the **ML**’s style, he / she will have an influence on the tasks performed by the different individuals in the team in achieving his / her own goals. The

nature and design of these tasks and the abilities of the individuals assigned to do them should be a good fit. Therefore, it is hypothesised that **ML** influences **TC**.

This argument directs this research to investigate the possible influence that **ML** may have on Team Functioning (**TF**), defined by Coetsee (2002) as “the extent to which members of work groups function effectively and work together as a team to achieve their goals and are satisfied with each other.” Larson and La Fasto (1989, p. 121) refer to leadership as the most critical ingredient in effective team performance. This view is supported by research, as acknowledged by Kolb (1996, p. 173). Tuckman (as cited in Cranwell-Ward, Bacon & Mackie, 2002, p. 62) identifies four main stages of team development and indicates the influential role that the leader has to play in each of these stages. During the *forming stage*, the individuals are cautious towards one another and the leader mainly makes the decisions with very few challenges by team members. During the *storming stage* the team starts to get to know one another better and they start working together. The leader still mainly makes the decisions but will encounter questioning. During the *norming stage* the team identifies common ways of working together to achieve their goals. By this stage the leader starts to share decision making with the team. The last stage is the *performing stage* where the team is known as a high-performance team. During this stage the leader delegates some of the decision making to the team and assumes the role of arbitrator.

From this argument, it is hypothesised that **ML** has a strong influence on **TF**, in making his / her team members successful.

It now seems logical to reason that **TC** may have an influence on **TF**, as the individual task and how it is divided amongst individual team members will have an influence on **TF**. Hughes, Ginnett and Curphy (1999) support this notion by saying that task structure is one of four variables that needs to be in place if a team is going to be able to work effectively and efficiently. This implies that the team knows what the tasks are; that tasks are reasonably unambiguous and consistent with the mission of the team; that the work is

meaningful; sufficient autonomy exists to perform the tasks; and access to and knowledge of the results are available.

Hackman's (as cited in Schneider, 1985, p. 594) normative model of group effectiveness is in support of this argument. He states that the work group context (**TF**) is important in understanding team effectiveness with specific reference to group goals. In addition the nature of group design in terms of task structure (**TC**), group composition and group synergy is crucial. The role of management (**ML**) in facilitating these conditions is emphasised lastly.

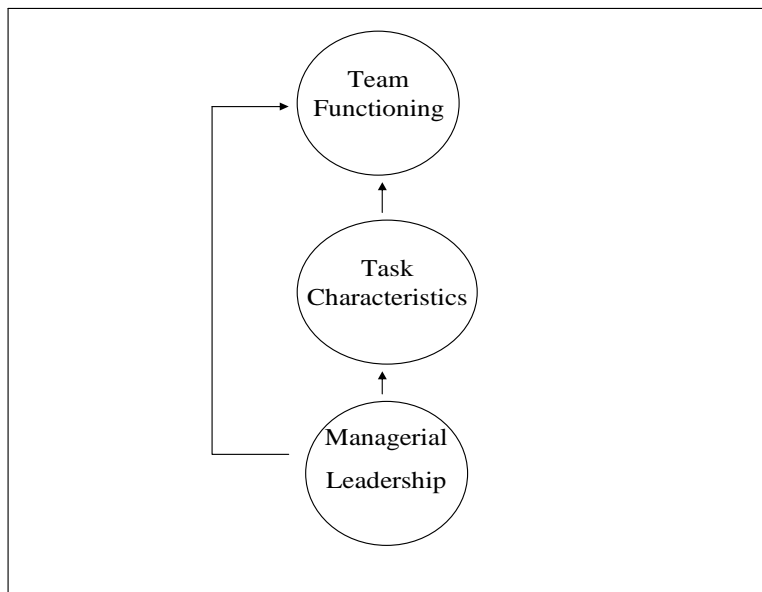
Deduced from this argument, it is hypothesised that:

H1: **ML** influences **TC**

H2: **ML** influences **TF**

H3: **TC** influences **TF**

These hypotheses are illustrated in Figure 2:



**Figure 2: Proposed relationship between ML, TC and TF**

Taking into account the Nadler and Tushman (1977) Organisational Congruence model (Figure 1) that focuses on group and individual entities, it seems logical to move from the group / team discussion to a discussion that focuses on the individual within the organisation to understand what the relationship of these causal linkages may be with Satisfaction Outputs (**SO**).

**SO**, as defined by Coetsee (2002), refers to “all organisational factors that have an influence on the employee’s perceived quality of work life. It includes job satisfaction, satisfaction with remuneration and the administration thereof as well as the extent to which work-related stress is experienced”. Coetsee (2002) uses the term job satisfaction to refer to “the extent to which people experience personal involvement in their jobs and the extent to which they enjoy their jobs.” Job satisfaction is the most important facet of **SO** although **SO** is a much wider concept than job satisfaction (Coetsee, 1982, p. 8).

Job satisfaction has been defined in a number of ways. Gruneberg (1976, p. x) defines job satisfaction as “the total body of feelings that an individual has about his or her job.” This total body of feelings involves weighing up the sum total of influences on the job, the nature of the job, the pay, the promotion aspects, and the nature of supervision. Lawler and Hall (1970, p. 307) explained job satisfaction in the light of motivation theory, classifying job satisfaction in terms of internal and external determinants. Internal determinants include all factors relating to intrinsic rewards derived from the job itself, such as personal responsibility and opportunities to utilise abilities, whereas external determinants refer to all other factors that are part of the work situation, including leadership and supervisory style, the work environment and rewards and recognition.

From these definitions it is clear that job satisfaction focuses on the specific task environment where an employee performs his or her duties (Mowday, Steers & Porter, 1979), whereas **SO** includes organisational factors that influence the wellbeing of the employee (Coetsee, 2002). This research will take into account the different subsystems

that contribute to the definition of **SO** and investigate the relationships between **TF** and **SO**, **TC** and **SO**, as well as **ML** and **SO**.

Since the early studies of Elton Mayo, it has been accepted that the character of the work group (**TF**) frequently exercises an influence on a worker's satisfaction (**SO**) on the job (Walker & Guest, 1952, p. 84). White and Mitchell (as cited in Caldwell & O'Reilly, 1982, p.361) found that employees who experience their co-workers positively are more satisfied and productive. Coetsee (2002) supports this view in stating that the way in which the individual perceives the interaction with team members will have an influence on the **SO** of the individual. From this it is hypothesised that **TF** influences **SO**.

According to Gruneberg (1976, p. xii), there is little disagreement today among theorists on the importance of the job (**TC**) itself as a major factor in determining the satisfaction (**SO**) of an individual. In addition, Lawler (1969, p. 90) and Lawler et al. (1970, p. 305) stress the important influence that job design has on the satisfaction of employees. Job design should lead to jobs that are motivational and empowering in nature, allow for creativity, provide feedback to the employee and utilise the employee's abilities. From this it is hypothesised that **TC** influences **SO**.

Boshoff and Mels (1995, p. 27) found that managers (**ML**) might enhance the satisfaction (**SO**) of employees by ensuring that job aspects are perceived favourably. In addition, managers (**ML**) can avoid the harmful effect of role conflict. In other words, by ensuring that subordinates do not have to face situations where incompatible job demands are being placed on them, the favourable outcome of having satisfied and committed employees is likely to result. According to Angle and Perry (1983), managerial leaders (**ML**) can also ensure that they have more satisfied employees (**SO**) by acting fairly and equitably. Coetsee (1987, p. 10; 2003, p. 46) states that **ML** is the most important determinant of **SO**. From this it is hypothesised that **ML** influences **SO**.

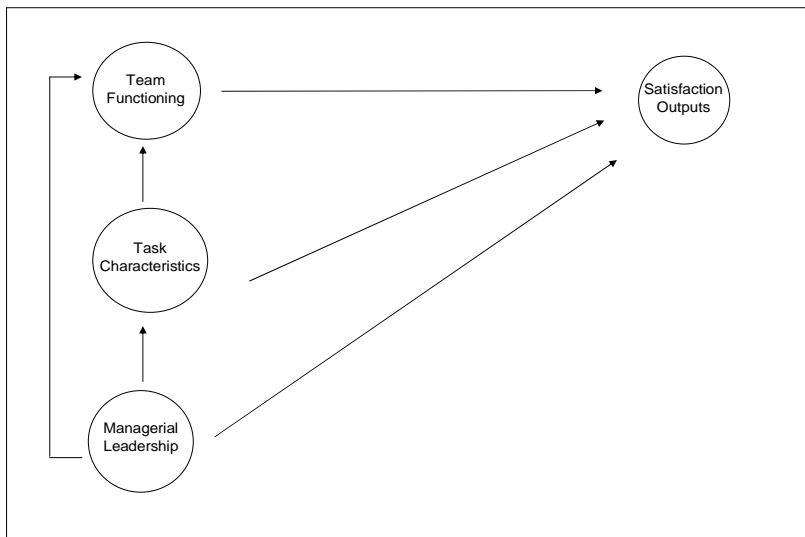
To summarize, it is hypothesized that:

H4: **TF** influences **SO**

H5: **TC** influences **SO**

H6: **ML** influences **SO**

These hypotheses are illustrated in Figure 3:



**Figure 3: Proposed relationship between ML, TC, TF and SO**

This research will not be complete if it does not also focus on the possible influence that **SO** may have on other constructs. Satisfaction is a well-researched construct that is related to the employee's physical and psychological wellbeing and positive experience of his / her quality of life (Coetsee, 2003, p. 45). The relationship between employee satisfaction in general and performance received much attention and it was found that, contrary to popular belief, satisfaction does not always result in good performance (Gruneberg, 1976; Hughes et al., 1999). However, **SO** may be positively related to aligned commitment (**AC**) that, in return, may result in better performance.

It is clear from Bishop and Scott (2000, p. 448) that satisfaction (**SO**) may influence employee commitment (**AC**) to the organisation. The definition of Porter, Steers, Mowday and Boulian (1974, p. 604) is often used to define organisational commitment as “1) a strong belief in, and acceptance of the organisations’ goals and values, 2) a willingness to exert considerable effort on behalf of the organisation, and 3) a strong desire to maintain membership in the organisation.” Allen and Meyer (as cited in Lok & Crawford, 2001, p. 594) define the affective component of organisational commitment as “the employee’s emotional attachment to, identification with, and involvement in the organisation.”

Coetsee (2002) defines aligned commitment (**AC**) as “the extent to which employees are focused on a shared vision - including the same overall goals - and the extent to which they are driven by an identical value system.” Coetsee (1999, p. 219) describes commitment as the opposite pole of resistance to change, representing a continuum. According to Coetsee (2003, p. 30), **AC** can only be achieved if all of the following conditions are in place: employees have the necessary knowledge (training); information (communication); and they are sufficiently empowered; are rewarded and recognized by means of rewards and forms of recognition they value; and they are aligned to a common vision and common values.

It is important to notice that organisational commitment and aligned commitment are not synonymous constructs. It is only the first aspect of “a strong belief in, and acceptance of the organisations’ goals and values” (Porter et al., 1974, p. 604), and the “involvement” part of Allen et al.’s (as cited in Lok et al., 2001, p. 594) definition, that resembles the exact nature of aligned commitment as intended by Coetsee (2003, p. 27). The remaining parts of the definitions strongly resemble aspects of how Coetsee (2002) defines organisational attachment, a subsystem of **SO**, that is defined as “the degree to which employees feel committed to the organisation.”

From this it is deduced that the construct **AC** and organisational attachment, as defined by Coetsee (2002), both refer to commitment - **AC** refers to commitment to



organisational values and goals, whereas organisational attachment indicates commitment to the organisation itself. Organisational commitment, as a multi-dimensional construct (Lok et al., 2001, p. 594), seems to include both these constructs. References to organisational commitment thus seem to include **AC**.

Commitment relates positively to a variety of desirable work outcomes, including employee satisfaction (**SO**), motivation and performance and correlates negatively to absenteeism and turnover (Chonko, Howell & Bellenger, 1986; Mathieu & Zajac, as cited in Chen, Tsui & Farh, 2002, p. 339). Turner (1995, p. 60) mentions that research often considered satisfaction (**SO**) to be an antecedent, or attitudinal cause of commitment. The higher the level of satisfaction (**SO**) experienced by employees, the higher their commitment to their organisations is likely to be (Johnston, Parasuraman, Futrell & Black, as cited in Boshoff et al., 1995; Lok et al., 2001). However, Coetsee's (2003) model of Elements and Dynamics of a Motivating Climate, indicates both **AC** and **SO** as outcomes of a motivating climate. This research will investigate the relationship between **AC** and **SO** further, bearing in mind the multi-dimensional nature of commitment, and will hypothesise that **SO** influences **AC**.

There is considerable evidence in the literature that the **AC** of employees is strongly influenced by the behaviour of their supervisors. Darden, Hampton and Howell (as cited in Pretorius, 1996) found that the nature of the leadership style (**ML**) has a direct influence on employee commitment. Larson et al. (1989, p. 120) reflected on several different perspectives of leadership and stated that an effective leader should first and foremost be able to establish a vision that should be articulated into team goals in such a way as to inspire a desire for and eventual commitment to the accomplishment of the goal. Larson et al. (1989, p 121) interviewed Vernon R. Loucks, chairman and CEO of Baxter International, who described this aspect of leadership as "the highest form of commitment. This is accomplished when people want to do their best because senior management has helped them understand what really has to happen – short and long term – in order for the business to be successful." Derived from these arguments, it is hypothesised that the leader (**ML**) influences **AC** by ensuring that all employees are

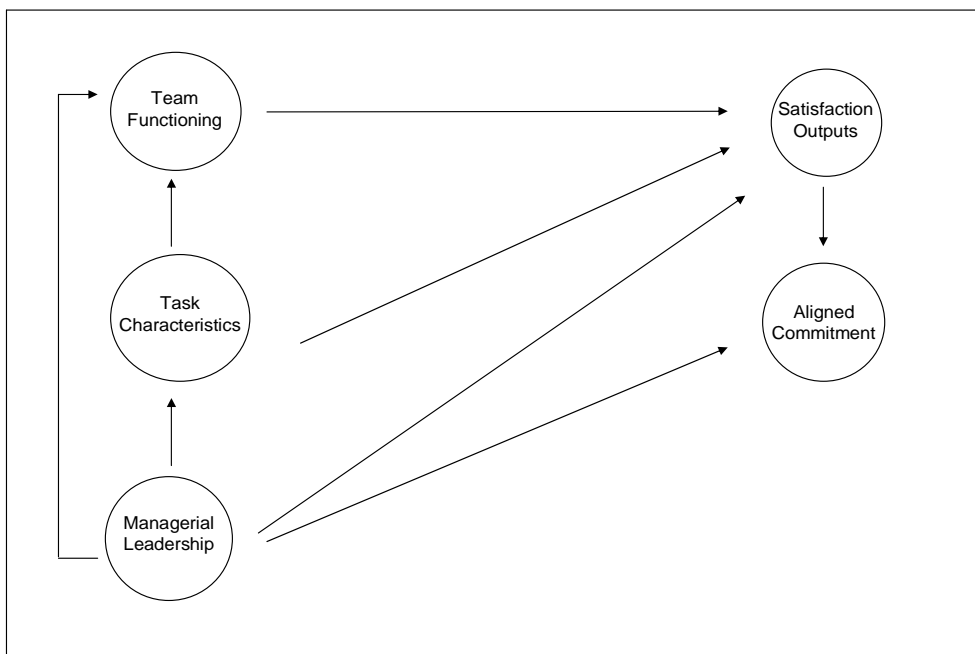
aligned to achieve a common goal or vision that will, in return, result in their commitment.

To summarise the argument, the following hypothesis will be investigated:

H7: **SO** influences **AC**

H8: **ML** influences **AC**

This hypothesis is illustrated in Figure 4:



**Figure 4: Proposed relationship between ML, TC, TF, SO and AC**

The construct organisational climate will now be investigated in an attempt to finalise the proposed structural model which explicates the nature of the causal linkages between the six main constructs comprising the ODQ.

The climate construct has been controversial for more than 30 years and the debate has resulted in major reviews and different models (Ekvall, 1987; James & Jones, 1974; Joyce & Slocum, 1979; Joyce & Slocum, 1982). The controversy is mostly caused by the diverse and sometimes contradictory nature in which climate is defined, measured and interpreted (James et al., 1974, p. 1096). Coetsee (2003) defines organisational climate (**OC**) as “the conditions under which a work group or individual operates. It refers to the employee’s positive or negative experiences of his / her work environment.” Literature reviews seem to agree on the definition of climate as the summary perception of individuals of an organisation, based on the interaction between the individual and the organisational situation. The summary perception is more descriptive than evaluative in nature (Ekvall, 1987; Joyce et al., 1979, Schneider, 1975).

Guion (1973) and Johannesson (1973) both believed that the climate construct is redundant and that it is just another term to indicate satisfaction. Discussions still attempt to establish whether organisational climate is distinguishable from organisational culture and leadership style (Al-Shammari, 1992; Ekvall, 1987).

Although organisational culture is not within the scope of this study, it is important to state the difference between **OC** and organisational culture as many writers use the terms interchangeably (Al-Shammari, 1992, p. 30). Organisational culture developed from anthropological roots and normally uses qualitative measures whereas **OC** developed from a social psychological framework and more often than not uses quantitative measuring methods (Glick, as cited in Al-Shammari, 1992). Organisational culture is concerned with the values, norms and behaviour of an organisation (Schneider, 1985, p. 596). **OC**, on the other hand, evolves from the way in which employees experience their work environment; it is their perception of different organisational conditions or organisational phenomena (Schneider, 1985, p 597).

The relationship between **OC** and **SO**, **OC** and **ML** as well as **OC** and **AC** will now be investigated.

Both **OC** and **SO** are psychological and perceptual in nature. It may be these similarities that make it difficult to distinguish between the two constructs and also complicate the nature of the relationship between **OC** and **SO**. According to Hellriegel and Slocum (1974), psychological climate (climate as an individual characteristic) may be closer to satisfaction than organisational climate (climate as an organisational attribute). Schneider (1975) and Ekvall (1987) state the distinguishing characteristics of climate and satisfaction: climate is descriptive and organisationally orientated whereas satisfaction is affectively and individually orientated. Research indicates strongly that **OC** influences **SO** (Friedlander & Margulies, 1969; Hellriegel et al., 1974; Joyce & Slocum, 1984; LaFollette & Sims, 1975; Litwin & Stringer, 1968) rather than the possibility of a relationship where **SO** influences **OC**. This study will investigate this relationship further and offers the hypotheses that **OC** influences **SO**.

Litwin et al. (1968, p. 116) are confident that the most important determinant of climate (**OC**) seems to be the leadership style utilised by managers or leaders (**ML**). Bunker and Wijnberg (1985), Coetsee (2003), Pritchard and Karasick (1973) and Wexley and Yukl (1984) say that climate is the result of the behaviour and policies of members of the organisation, especially top management. Al-Shammari (1992) as well as Ekvall (1987), reported on research that confirms the impact of leadership on climate but also state that leadership is a separate construct and not part of climate. Ekvall and Arvonen (1984) found in their study that 65% of the variance in climate is explained by the manager's leadership style. From this it is hypothesised that **ML** influences **OC**.

The relationship between **AC** and **OC** has not been investigated much. DeCotiis and Summers (as cited in Roodt, 1992, p. 111) found that certain climate dimensions have an influence on employee commitment. Ostroff (as cited in Schwepker, 2001) found that climate accounted for 21% of the variance in commitment in their study. Roodt (1992, p. 118) supports this view and states that **OC** can be used as an umbrella construct to replace certain situational variables and that **OC** influences commitment. However, this relationship is not well researched and commitment may imply the multi-dimensional

organisational commitment rather than **AC**. For this reason it is necessary to conduct research to determine what the relationship is between **OC** and **AC**. Coetsee (1993, p. 24) mentions the importance of the **OC** in the process of change to achieve **AC** within the company. Taking this into account, this research hypothesises that **OC** influences **AC**.

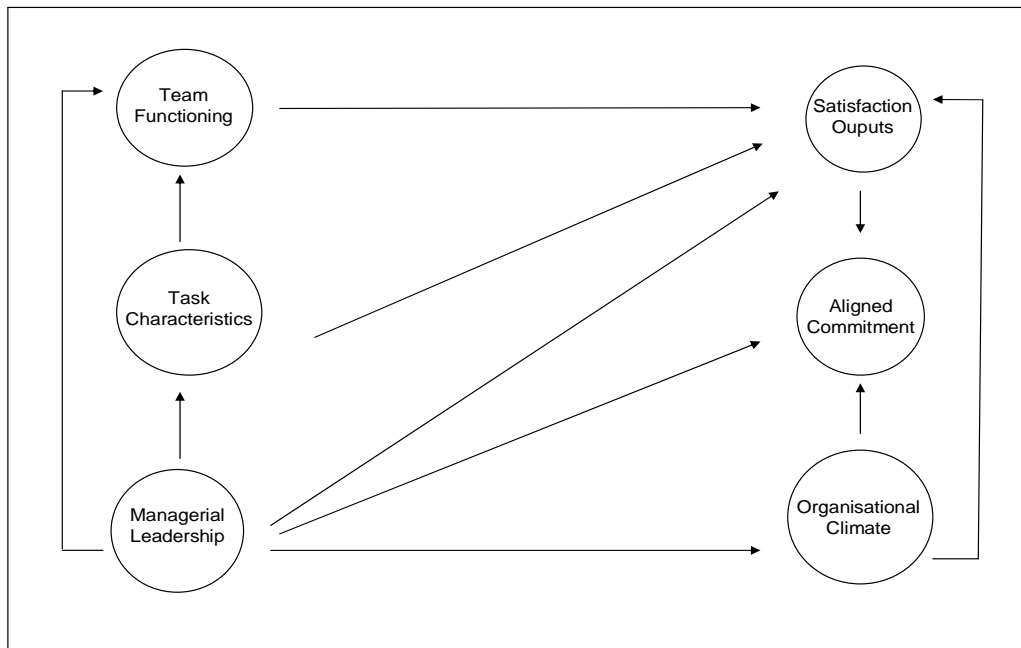
From this final argument the last hypothesis can be summarised as:

H9: **OC** influences **SO**

H10: **ML** influences **OC**

H11: **OC** influences **AC**

Taking into account hypotheses H1 to H11, the following structural model that indicates the nature of the hypothesised causal linkages between the six main constructs comprising the ODQ is proposed.



**Figure 5: Proposed structural model**

## METHOD

### Research Design

A correlation design, which is one of the *ex post facto* designs, was used to achieve the research objectives. *Ex post facto* research is a systematic empirical inquiry in which the researcher does not have direct control of independent variables as their manifestations have already occurred or because they are inherently not manipulable. The difference with regard to experimental design is therefore the lack of direct control that the scientist could have had in controlling variance in the dependent variable(s) through these two design characteristics (Kerlinger and Lee, 2000).

### Participants

The participants were employees in a chrome manufacturing plant in Witbank, Mpumalanga. The company had 538 employees at the time of the diagnosis and everybody, at all the different levels of the company, was asked to participate. Four hundred and eighty-four questionnaires could be used for statistical purposes. The difference of 54 can mostly be accounted for by the fact that some employees were on leave at the time and by a few randomly completed questionnaires.

The diagnosis was done by means of two formats of the ODQ – the Standard ODQ as well as an Abbreviated version. The Standard ODQ was completed by 273 employees and 211 employees completed the Abbreviated version. The Abbreviated version was mostly completed by illiterate employees, with the assistance of an administrator and a translator.

Only the 273 Standard ODQ questionnaires were used for the purposes of this study as the results of the two questionnaires could not be integrated. There are a variety of reasons for this: two different techniques were used to gather information, the comparative norms for the two questionnaires differed and different answering scales were used.

### **Measuring instrument**

The Organisational Diagnostic Questionnaire (Coetsee, 2002) has a development history of more than 27 years and was first applied in 1976. It has been scientifically validated and analysed in depth by the author and his associates on eight occasions. Item and factor analyses were done during each of these investigations and the ODQ was updated and changed to fit new requirements on each of these occasions. It was updated again in 2002 (Coetsee, 2002).

As mentioned by Coetsee (2002), the ODQ is probably the most effective and best known standardised measuring instrument used to evaluate the functioning of organisations in South Africa from an organisational behavioural perspective. South African norms are used to compare a company to a norm group. Companies are compared to other companies on each of the six main and 34 subfactors that are evaluated.

The norms were developed on the basis of the use of the ODQ in more than 250 Southern African organisations and professions, in which the ODQ was completed by more than 200 000 employees. The companies that were involved cover many different spectrums, from financial institutions to heavy industries, small production companies, the service industry, power supply companies, high technology companies, pharmaceutical companies, government institutions, agricultural corporations and provincial and local authorities (Coetsee, 2002). The ODQ is a paper and pen questionnaire.

### **Procedure**

The organisational diagnosis was undertaken during August and September 2003. During this period an awareness and information campaign was launched and many different administration sessions were organised to accommodate as many employees as possible. Most of the employees who participated were shift workers which demanded thorough planning of the administration process.

Human Resource Practitioners were trained in the administration of the questionnaires and assisted with the distribution and the collection of the questionnaires. Employees

completed these questionnaires anonymously and biographical details in terms of age, sex, race, years of service, level of work and plant were collected.

The questionnaire responses of employees were statistically analysed by computer, with the aid of a standardised programme. During this process, the responses on a six-point Likert Scale were converted to stanine scores to facilitate comparisons to a norm. The norm refers to the full stanine distribution; average performance is indicated by a stanine of five.

## **RESULTS**

### **Statistical Analysis**

The statistical analysis was carried out with the use of SPSS (SPSS, 1990) and STATISTICA (StatSoft, 2004). The reliability of the ODQ was analysed and Pearson correlations were calculated. Statistically it did not make sense to do a regression analysis because of the high correlations between the independent variables. The analysis was done, however, but is not reported because the results support the Pearson correlations.

### **Missing Values**

Missing values did not trouble the research. Two hundred and seventy-three questionnaires were used and the statistical analysis reported an n of 266. The difference was not taken into account because of its inferior size – it would not have resulted in a difference in the results.

### **Results regarding the reliability of the instrument**

The reliability of the ODQ was analysed on eight occasions and proved to be adequate (Coetsee, 2002). These results are reported in Table 1. This study reinvestigated the reliability of the instrument as even a validated questionnaire can have poor results if the questionnaires are completed incorrectly. However, the study indicated high reliability coefficients for each of the six main factors of the ODQ. There is good correlation



between the current reliability scores and the reliability scores indicated by Coetsee (2002). The results are reported in Table 1.

**TABEL 1**  
**RESULTS FROM RELIABILITY ANALYSIS SHOWING THE CRONBACH ALPHA VALUES**  
**FOR THE DIFFERENT CONSTRUCTS**

Factor	Previous Findings Reliability Coefficients	Current Findings Reliability Coefficients
Organisational Climate	0.925	0.97
Team Functioning	0.874	0.94
Task Characteristics	0.901	0.91
Managerial Leadership	0.948	0.96
Satisfaction Outputs	0.797	0.90
Aligned Commitment	0.697	0.90

**Results regarding the correlation analyses**

Table 2 indicates significantly high ( $p < 0, 01$ ) Pearson correlations of all the constructs with one another. The focus will, however, be on the hypothesised correlations.

**TABLE 2**  
**CORRELATION COEFFICIENTS BETWEEN THE SIX MAIN CONSTRUCTS COMPRISING**  
**THE ODQ.**

Variable	OC	AC	TF	TC	ML	SO
OC	1.00	0.76	0.51	0.60	0.55	0.72
AC	0.76	1.00	0.51	0.68	0.57	0.69
TF	0.51	0.51	1.00	0.57	0.60	0.34
TC	0.60	0.68	0.56	1.00	0.57	0.52
ML	0.56	0.57	0.56	0.53	1.00	0.50
SO	0.69	0.69	0.38	0.54	0.46	1.00

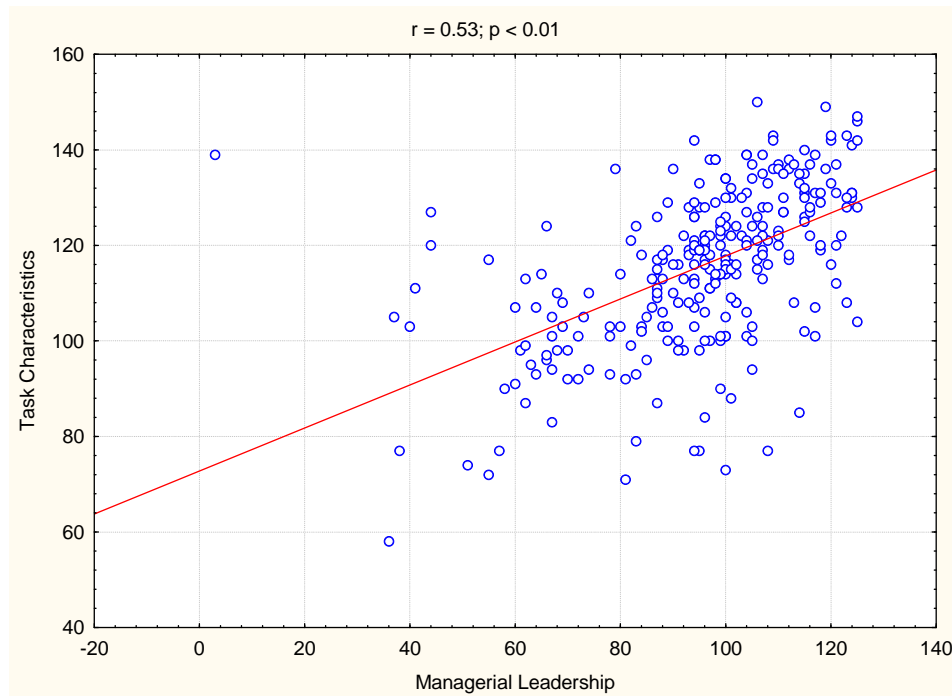
All correlations are significant on a 1% level.

Guilford's (Tredoux & Durrheim, 2002, p. 184) interpretation of the magnitude of the significant  $r$ -value, as indicated in Table 3, was used to interpret the correlation coefficients. Although this interpretation is somewhat arbitrary and although it ignores the normative question about the magnitude of values typically encountered in a particular context, it still provides the interpreter with some guidelines for consistency.

**TABLE 3**  
**GUILFORD'S INTERPRETATION OF THE MAGNITUDE OF SIGNIFICANT  $r$**

Absolute value of $r$	Interpretation
$< 0.19$	Slight, almost no relation
$0.20 - 0.39$	Low correlations; definite but small relationship
$0.40 - 0.69$	Moderate correlations; substantial relationship
$0.70 - 0.89$	High correlations; strong relationship
$0.90 - 1.00$	Very high correlations; very dependable relationship

**Hypothesis 1: ML influences TC**

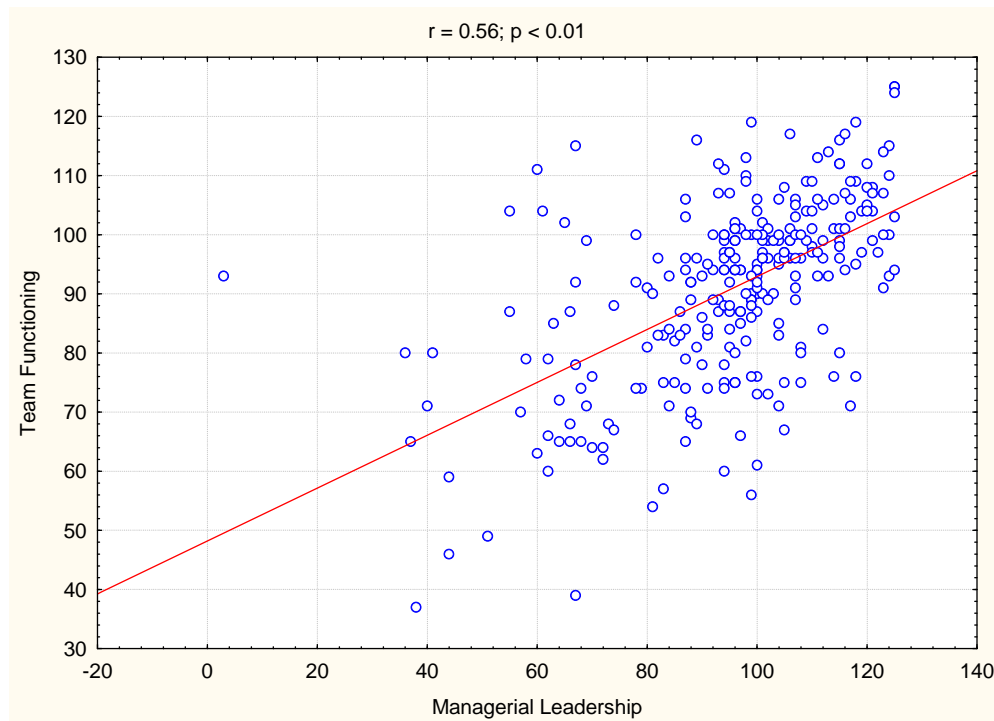


**Figure 6: Scatter plot of ML and TC showing a significant linear relationship (Hypothesis 1)**

Hypothesis 1 postulates that **ML** influences **TC**. Figure 6 indicates a substantial linear relationship between **ML** and **TC** ( $r = 0.53$ ;  $p < 0.01$ ). This finding implies that organisational units characterised by high **ML** will be characterised by high **TC**. This finding is consistent with the literature, which suggests that the managerial leader's style will have an influence on the tasks performed by different individuals (Ford et al., 1969, p. 40).

### **Hypothesis 2: ML influences TF**

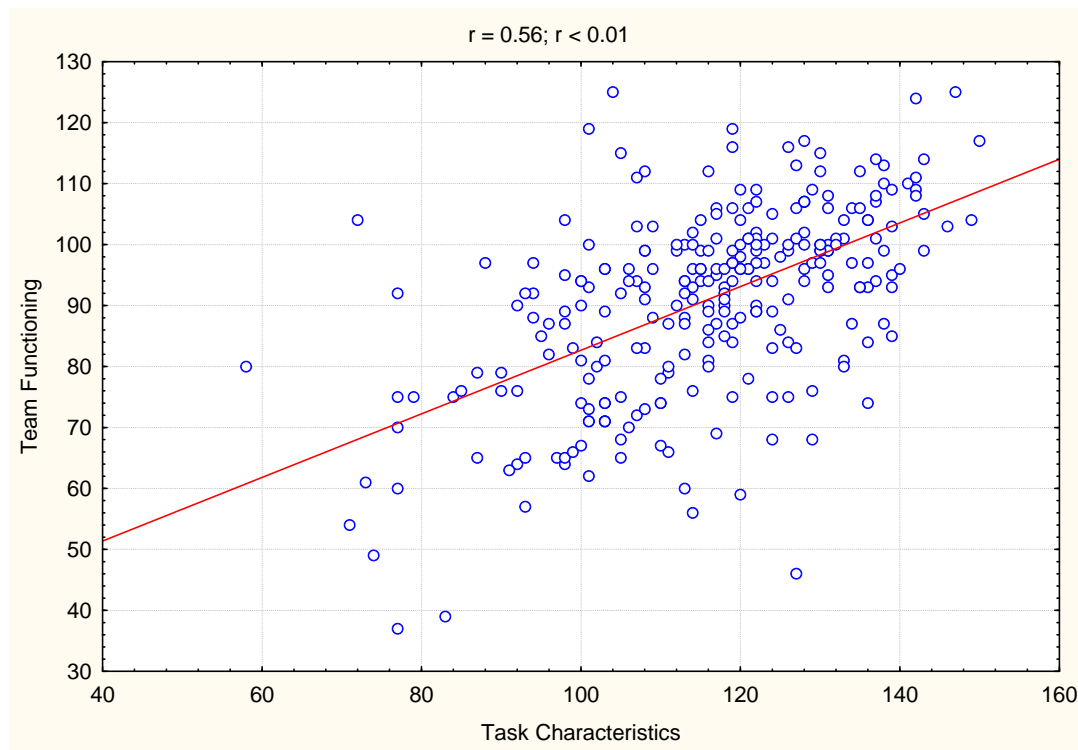
Hypothesis 2 postulates that **ML** influences **TF**. Figure 7 indicates a substantial linear relationship between **ML** and **TF** ( $r = 0.56$ ;  $p < 0.01$ ). This finding implies that organisational units characterised by high **ML** will be characterised by **TF**. This finding is consistent with the literature, which suggests that leadership is a crucial ingredient for effective team performance (Larson & La Fasto, 1989).



**Figure 7: Scatter plot of ML and TF showing a significant linear relationship (Hypothesis 2)**

### Hypothesis 3: TC influences TF

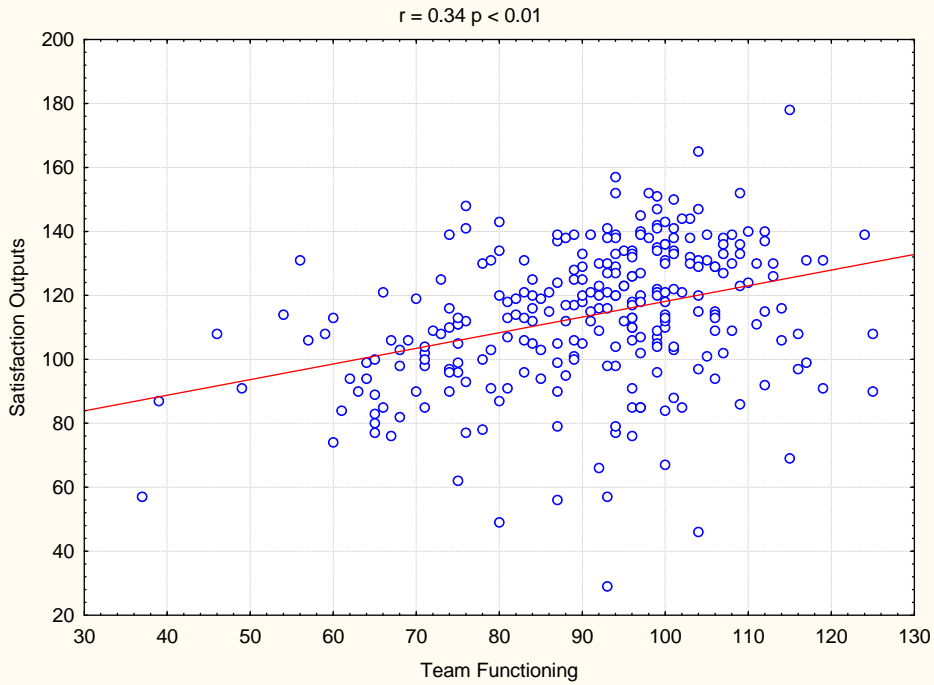
Hypothesis 3 postulates that **TC** influences **TF**. Figure 8 indicates a substantial linear relationship between **TC** and **TF** ( $r = 0.56$ ;  $p < 0.01$ ). This finding implies that organisational units characterised by high **TC** will be characterised by high **TF**. The finding is consistent with the literature, which suggests that the task and how it is structured is critical for a team to be effective (Hughes et al., 1999).



**Figure 8: Scatter plot of TC and TF showing a significant linear relationship (Hypothesis 3)**

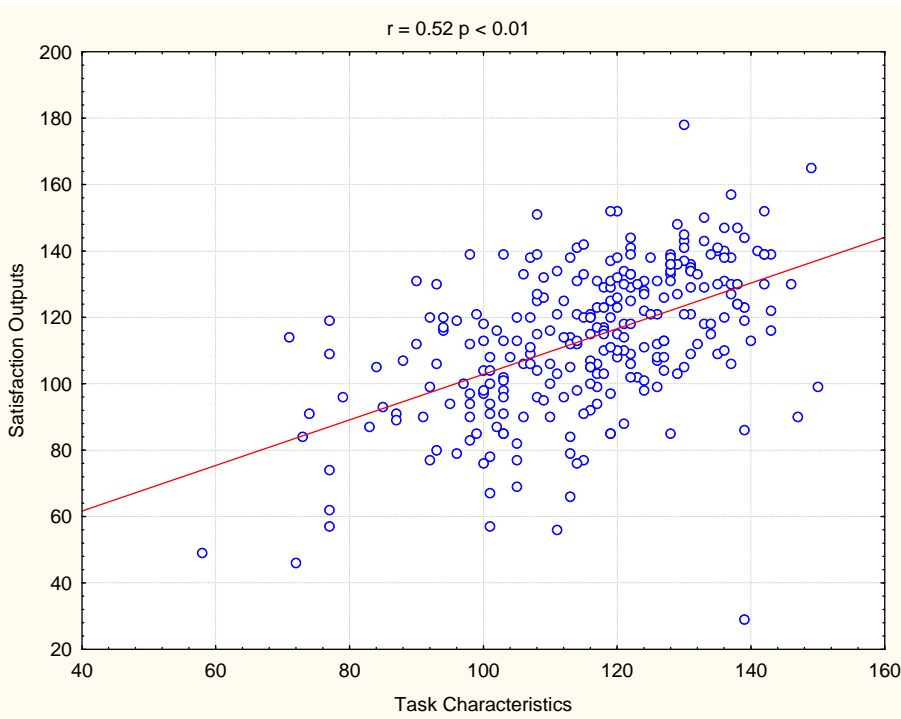
### Hypothesis 4: TF influences SO

Hypothesis 4 postulated that **TF** influences **SO**. Figure 9 indicates a small but still significant linear relationship between **TF** and **SO** ( $r = 0.34$ ;  $p < 0.01$ ). This finding indicates a relationship in which **TF** affects **SO**. However, the relationship is the weakest, compared to **ML**, **TC** and **OC**. This weaker relationship, however, is still strong enough to support research findings that state that the measure in which team members are experienced will have an influence on the satisfaction of an employee.



**Figure 9: Scatter plot of TF and SO showing a small but still significant linear relationship (Hypothesis 4)**

**Hypothesis 5: TC influences SO**

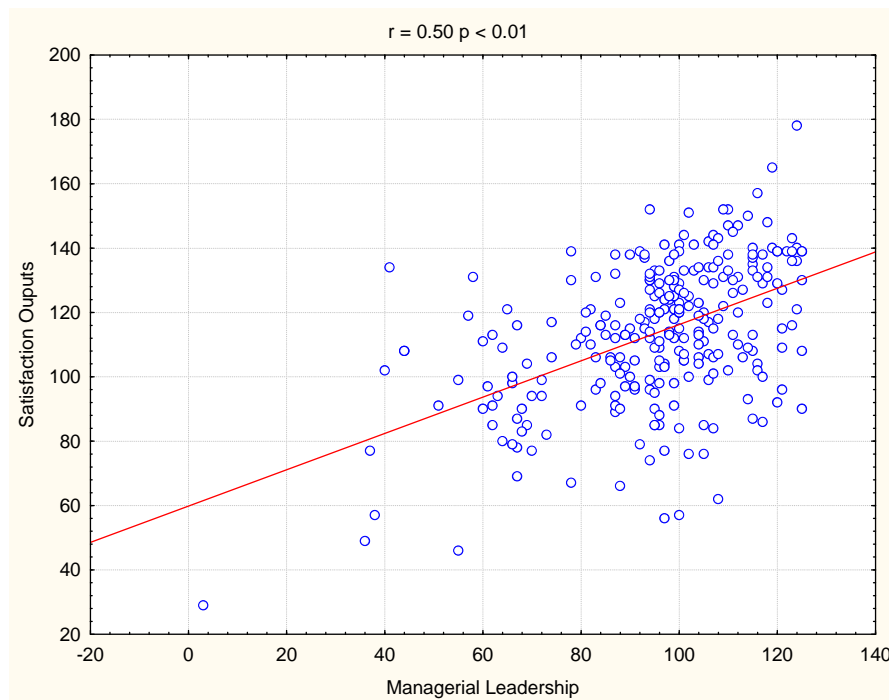


**Figure 10: Scatter plot of TC and SO showing a significant linear relationship (Hypothesis 5)**

Hypothesis 5 postulates that **TC** influences **SO**. Figure 10 indicates a substantial linear relationship between **TC** and **SO** ( $r = 0.52$ ;  $p < 0.01$ ). This finding implies that, if **TC** is high, the organisational unit will be characterised by high **SO**. This finding is consistent with the literature, which suggests that the job itself and how it is designed has a major influence on the satisfaction of employees (Lawler et al., 1970).

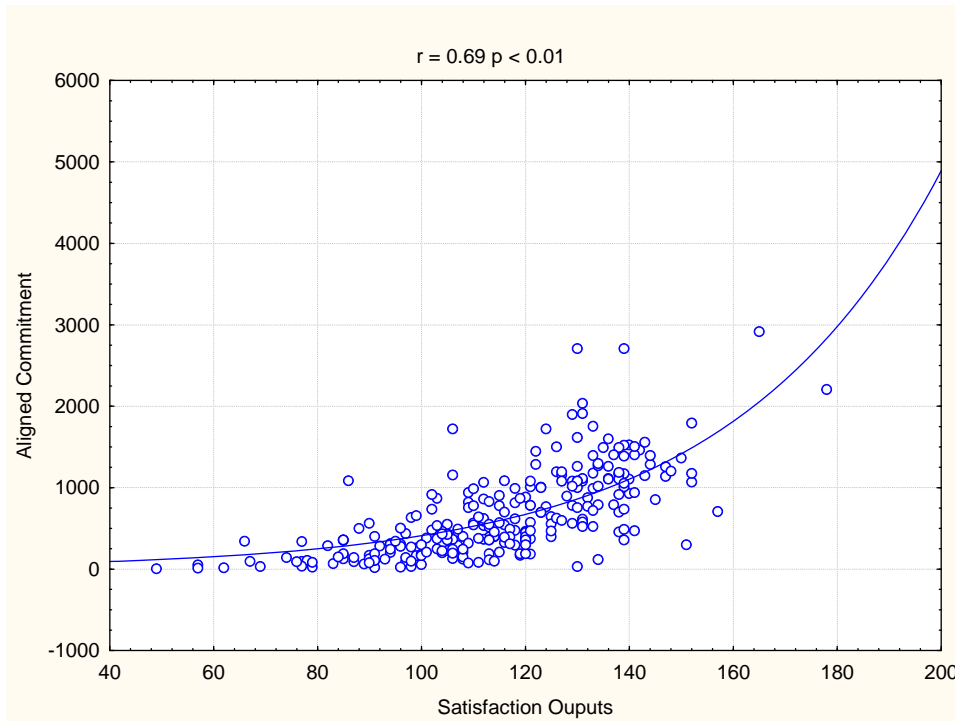
### **Hypothesis 6: ML influences SO**

Hypothesis 6 postulates that **ML** influences **SO**. Figure 11 indicates a substantial linear relationship between **ML** and **SO** ( $r = 0.50$ ;  $p < 0.01$ ). This finding implies that if the organisational unit is characterised by high **ML** it will also be characterised by high **SO**. This finding is consistent with the literature, which suggests that positive behaviour of the **ML** will influence the **SO** of employees positively (Angle & Perry, 1983; Boshoff & Mells, 1995).



**Figure 11: Scatter plot of ML and SO showing a significant linear relationship (Hypothesis 6)**

## Hypothesis 7: SO influences AC

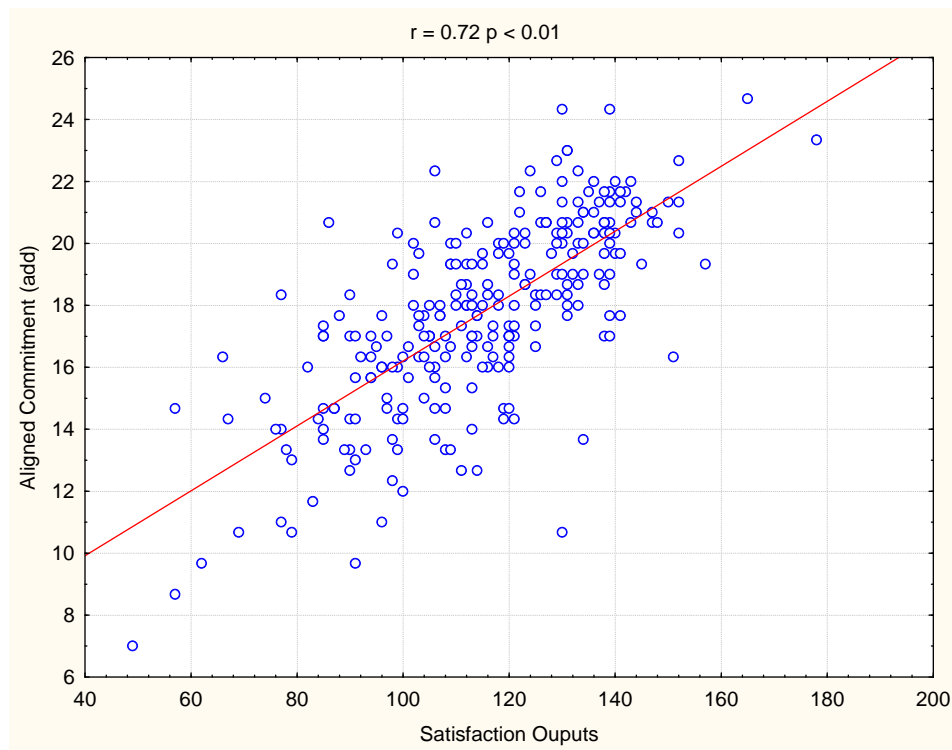


**Figure 12: Scatter plot of SO and AC showing a non-linear relationship (Hypothesis 7)**

Hypothesis 7 postulates that **SO** influences **AC**. Figure 12 indicates a substantial relationship ( $r = 0.69$ ;  $p < 0.01$ ) between **SO** and **AC**. However, this is not a linear relationship. The graph indicates more of a linear relationship between low **SO** and low **AC**. However, an increase in **SO** resulted in a greater increase in **AC**. These findings are not supported by the literature, which led to further investigation.

It was found that the reason for this non-linear relationship was a result of how **AC** was calculated. **AC = Knowledge x Information x Empowerment x Rewards and Recognition x Shared vision and values** (Coetsee, 2003). The reason for a multiplication formula is to assist the theory that, if any of these compulsory ingredients for **AC** are not in place, **AC = 0**. However, a linear relationship will not be achieved if **AC** is a multiplication of its elements (e.g.  $2 \times 4 = 8$ ) compared to all the other constructs that are results of the sum of all their elements (e.g.  $2 + 4 = 6$ ).

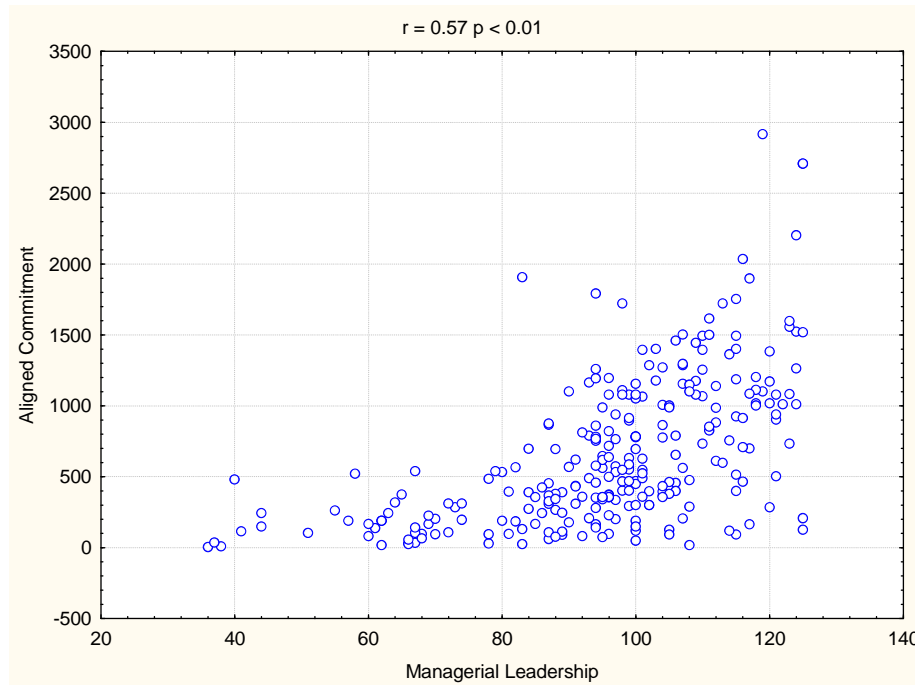
A further investigation was done to determine if a result of 0 was scored for **AC** in this study. This study, however, resulted in no 0 values for **AC**. For this reason it was decided to investigate the relationship of **AC**, determined by the sum of its determining factors. This resulted in Figure 13, which indicates a substantial linear relationship between **SO** and **AC** ( $r = 0.72$ ;  $p < 0.01$ ). This finding is consistent with literature findings and indicates that the reason for the non-linear relationship is due to the manner in which the **AC** construct has been operationalised. Positive **SO** affects **AC** positively.



**Figure 13: Scatter plot of SO and AC (additional calculation) showing a significant linear relationship (Hypothesis 7)**



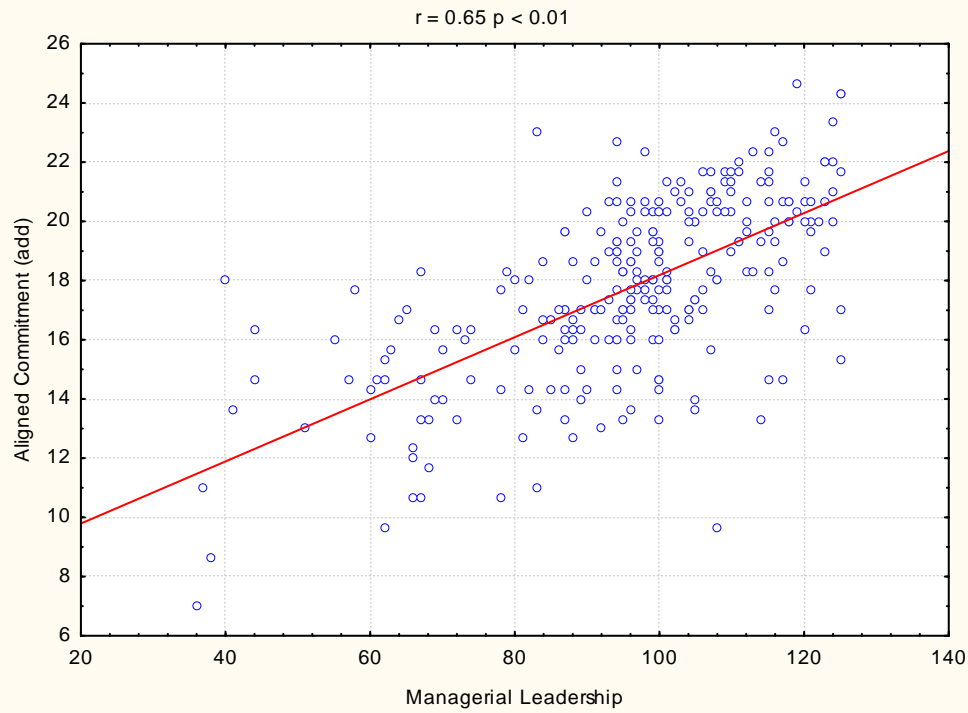
### Hypothesis 8: ML influences AC



**Figure 14: Scatter plot of ML and AC showing a non - linear relationship (Hypothesis 8)**

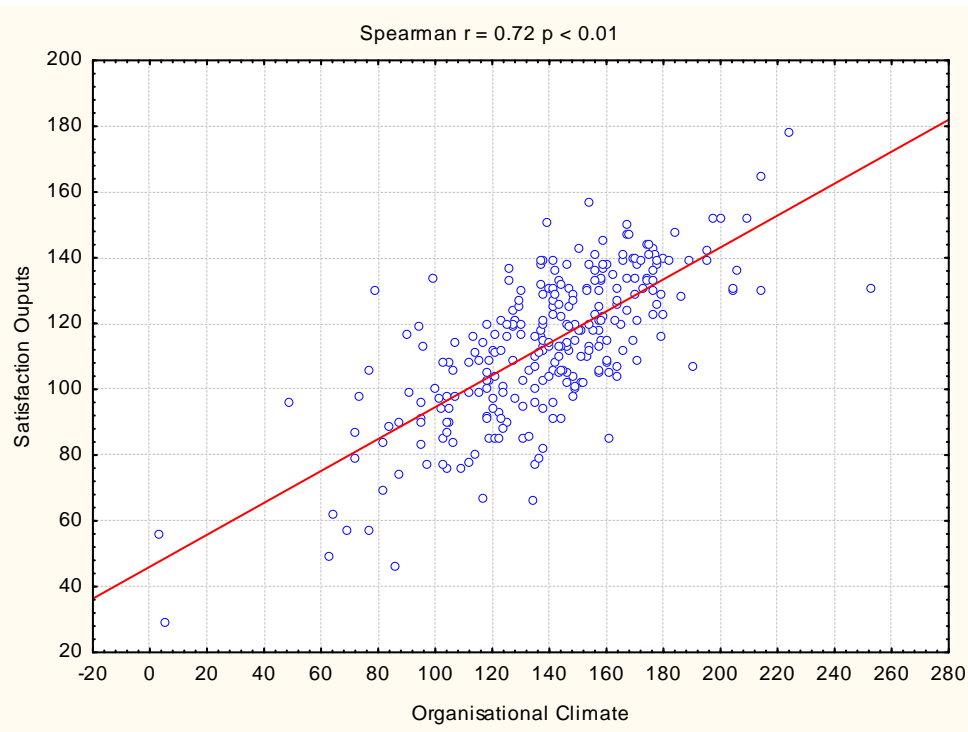
Hypothesis 8 postulates that **ML** influences **AC**. Figure 14 indicates a substantial relationship between **ML** and **AC** ( $r = 0.57$ ;  $p < 0.01$ ). However, this is not a linear relationship. The graph indicates more of a linear relationship between low **ML** and low **AC**. However, higher **ML** does not necessarily result in higher **AC**. These findings are not in line with findings in the literature.

Based on the previous finding with regards to the calculation of **AC**, **AC** was again determined by the sum of its determining factors to further investigate the relationship between **ML** and **AC**. This resulted in Figure 15, which indicates a substantial linear relationship between **ML** and **AC** ( $r = 0.64$ ;  $p < 0.01$ ). This finding is consistent with literature findings and indicates that the non-linear relationship is due to the manner in which the **AC** construct has been operationalised. Positive **ML** will have a positive influence on **AC**.



**Figure 15: Scatter plot of ML and AC (additional calculation) showing a significant linear relationship (Hypothesis 8)**

**Hypothesis 9: OC influences SO**

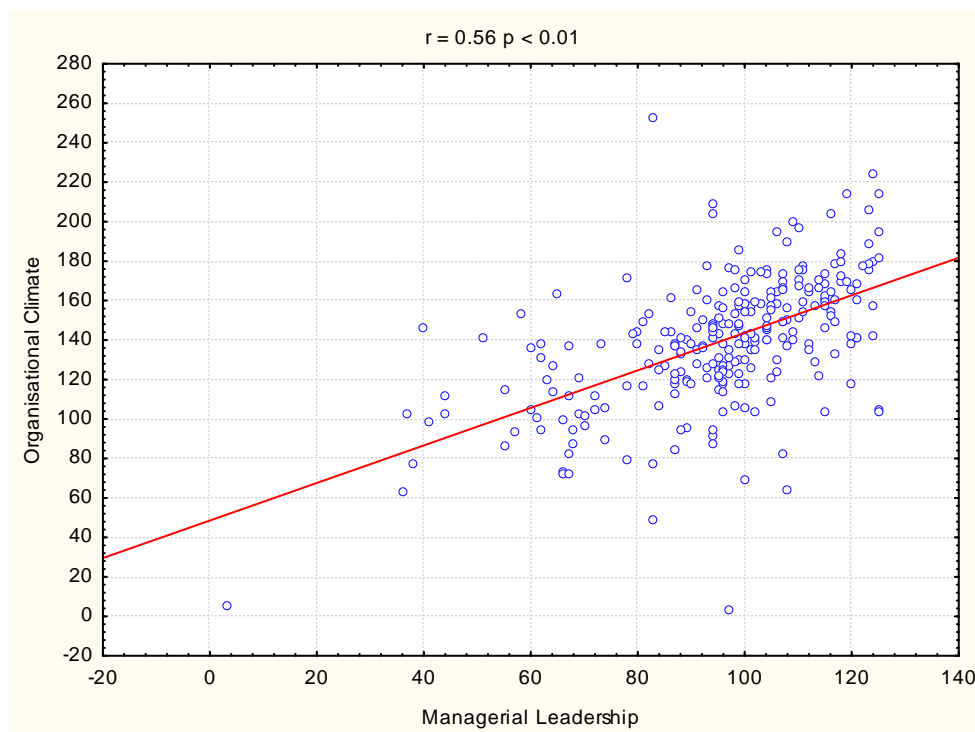


**Figure 16: Scatter plot of OC and SO showing a significant linear relationship (Hypothesis 9)**

Hypothesis 9 postulates that **OC** influences **SO**. Figure 16 indicates a strong linear relationship ( $r = 0.72$ ;  $p < 0.01$ ) between **OC** and **SO**. This finding implies that a positive **OC** will have a positive influence on **SO**. This finding is in line with the literature, which already strongly suggested that **OC** influences **SO**.

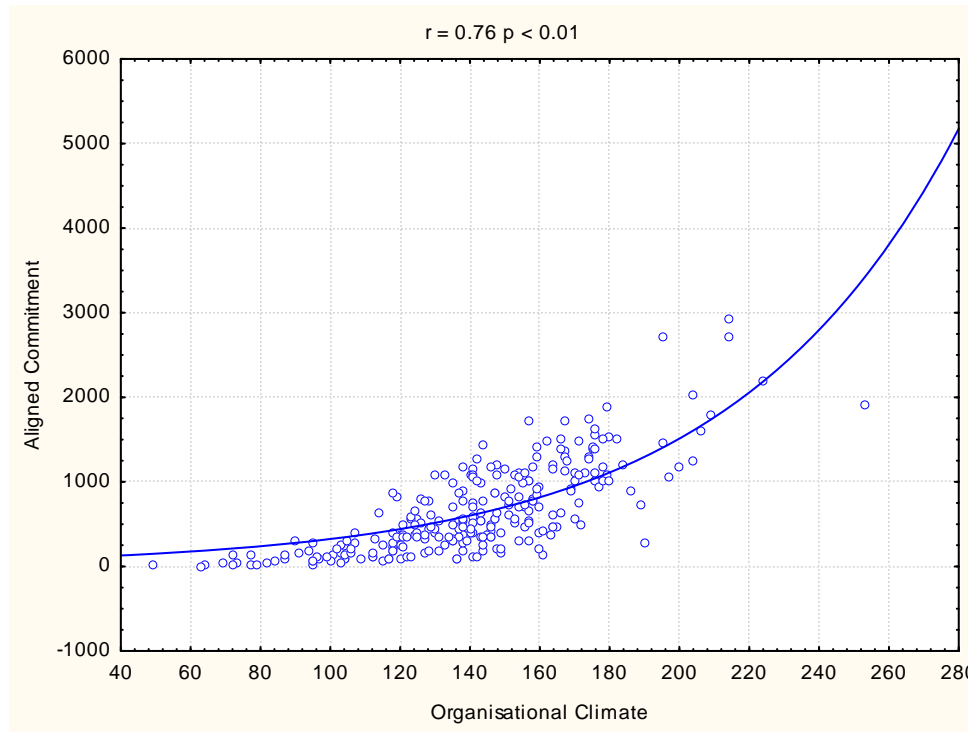
### **Hypothesis 10: ML influences OC**

Hypothesis 10 postulates that **ML** influences **OC**. Figure 17 indicates a substantial linear relationship ( $r = 0.56$ ;  $p < 0.01$ ) between **ML** and **OC**. This finding implies that if an organisational unit is characterised with high **ML** it will also be characterised by high **OC**. This finding is in line with the literature, which suggests that **ML**, in particular the behaviour and style of the **ML**, has a strong influence on **OC** (Al-Shammari, 1992; Ekvall, 1987). However, Ekvall et al. (1984) found in their study that 65% of the variance in climate is explained by the manager's leadership style, while this study found that only 31% of the variance in **OC** can be explained by **ML**.



**Figure 17: Scatter plot of ML and OC showing a significant linear relationship (Hypothesis 10)**

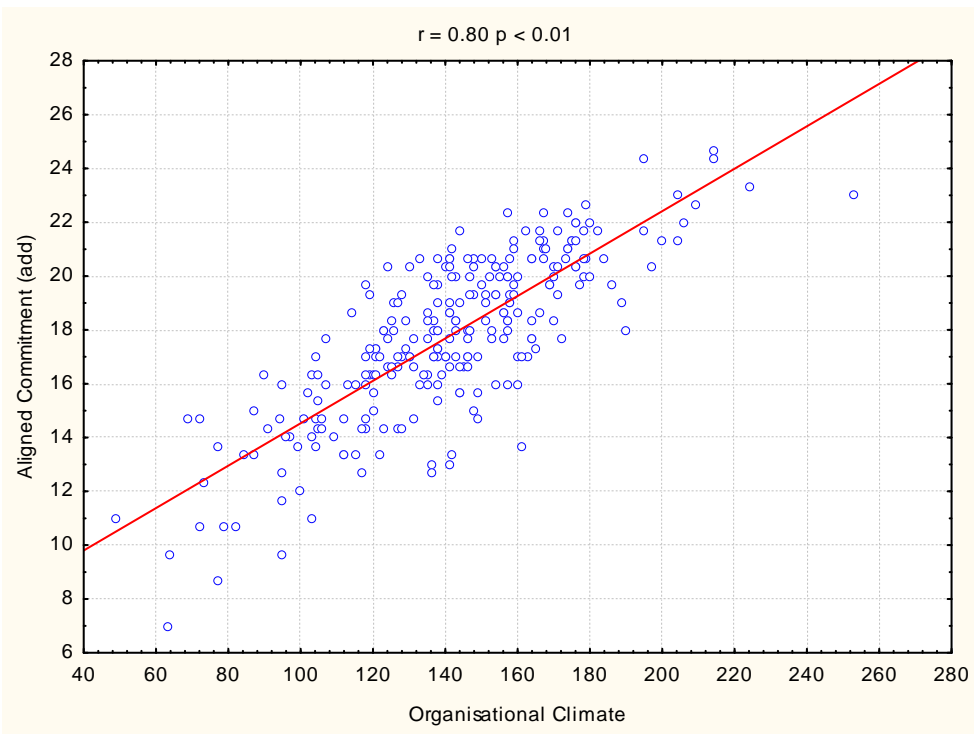
### Hypothesis 11: OC influences AC



**Figure 18: Scatter plot of OC and AC showing a non - linear relationship (Hypothesis 11)**

Hypothesis 11 postulates that **OC** influences **AC**. Figure 18 indicates a strong relationship ( $r = 0.76$ ;  $p < 0.01$ ) between **OC** and **AC**. However, this is not a linear relationship. The graph indicates more of a linear relationship between low **OC** and low **AC**. However, an increase in **OC** resulted in a greater increase in **AC**. These results are not in line with findings in the literature.

Based on the previous finding with regards to the calculation of **AC**, **AC** was again determined by the sum of its determining factors to further investigate the relationship between **OC** and **AC**. This resulted in Figure 19, which indicates a strong linear relationship between **OC** and **AC** ( $r = 0.80$ ;  $p < 0.01$ ). This finding is consistent with literature findings and indicates that the reason for the non-linear relationship is due to the manner in which the **AC** construct has been operationalised and not the inherent structure of the constructs. A positive **OC** will have a positive influence on **AC**.



**Figure 19: Scatter plot of OC and AC (additional calculation) showing a linear relationship (Hypothesis 11)**

**The relationship between ML, TC, TF, OC and SO**

A comparative study was undertaken to gain more insight into the nature of the now established relationships between the mentioned constructs. The results are indicated in Table 4. Positive relationships exist between **ML**, **TC**, **TF** and **OC** with an influence on **SO**. The strongest relationship exists between **OC** and **SO**. **ML** and **TC** contribute roughly the same amount of influence on **SO**. **TF** has the smallest influence on **SO**. These findings are somewhat contradictory to Coetsee’s (1987, p. 10; 2003, p. 46) finding that states that **ML** is the most important determinant of **SO**. This research indicates that **OC** is the strongest determinant of **SO**.

**TABLE 4**  
**THE RELATIONSHIP BETWEEN ML, TC, TF, OC AND SO**

Variable	OC	TF	TC	ML
SO	0.72 p < 0.01	0.34 p < 0.01	0.52 p < 0.01	0.50 p < 0.01

Test for significant differences in correlations:

OC vs. TF	p < 0.01
OC vs. TC	p > 0.01
OC vs. ML	p < 0.01
TF vs. TC	p = 0.01
TF vs. ML	p = 0.02 (significant only on a 5% level)
TC vs. ML	p = 0.75 (not significant)

**The relationship between AC and OC, SO and ML.**

A comparative study was undertaken to gain more insight into the nature of the now established relationships between the mentioned constructs. The results are indicated in Table 5. Positive relationships exist for **OC**, **SO** and **ML** with an influence on **AC**. The strongest relationship exists between **OC** and **AC**. The second biggest influencer on **AC** is **SO**. These two findings are not surprising as all three of these constructs are attitudinal in nature. **ML** has the smallest influence on **AC**.

**TABLE 5**  
**THE RELATIONSHIP BETWEEN AC, OC, SO AND ML**

Variable	OC	ML	SO
AC (add)	0.80	0.64	0.72
	P < 0.01	p < 0.01	p < 0.01
Test for significant differences in correlations:			
SO vs. OC	p < 0.01		
SO vs. ML	p = 0.03 (significant only on a 5% level)		
OC vs. ML	p = 0.09 (significant only on a 10% level)		

**The relationship between ML, TC and TF and OC**

A comparative study was undertaken to gain more insight into the nature of the now established relationships between the mentioned constructs. The results are indicated in Table 6. Positive relationships exist for **ML**, **TC** and **TF** with an influence on **OC**. **ML** has the strongest relationship with **OC** although there is an insignificant difference in terms of what each of these constructs contributes differently to **OC** in terms of one another. This finding supports the proposed model in terms of the only hypothesis stating that **ML** influences **OC**.

**TABLE 6**  
**THE RELATIONSHIP BETWEEN ML, TC, TF AND OC**

Variable	TF	TC	ML
OC	0.46	0.55	0.56
	P < 0.01	p < 0.01	p < 0.01
Test for significant differences in correlations:			
TF vs. TC	p = 0.22 (not significant)		
TF vs. ML	p = 0.12 (not significant)		
TC vs. ML	p = 0.87 (not significant)		

## DISCUSSION

A structural model that explicates the nature of the causal linkages among the six main constructs comprising the ODQ was developed by using the integration systems approach (Muller-Merbach, 1994, p.19).

The purpose was to create a holistic understanding of the current situation within an organisation by not only focusing on individual constructs but by taking into account the inter-relatedness of these constructs.

The model was tested and seems to offer one plausible account of the influences that exist between the latent variables and survived the opportunity to be reputed. However, the limitations placed on this study by the shortcomings of the *ex post facto* research design, should be taken into account. The effect of this design does not rule out the possibility that other structural relations could explain the observed correlations.

The benefit of this structural model will lie in the interpretation of the diagnostic results derived from the ODQ. Some of the most important findings that should be taken into account in the interpretation of the results are: **ML** has the strongest influence on **OC**, whereas **OC** has the strongest influence on **SO**, as well as the strongest influence on **AC**. Deduced from these findings, it is imperative that there should first be a focus on the outcome of **ML** and **OC**. These two constructs are most influential in determining the outcome of the other constructs and may very well be the starting point for managers and change agents in their interpretation of the diagnostic results.

The question still remains how the ODQ in its current form relates to the Nadler and Tushman (1977) Organisation Congruence model and whether the measured factors can be explained better by the proposed model.

Deduced from this research, it is believed that the ODQ in its current form still relates to the Nadler and Tushman (1977) Organisation Congruence model. However,



investigating the relationship among the six main constructs of the ODQ in their current format led to the belief that the proposed structural model will improve the understanding of line managers and change agents in terms of the interrelatedness of these concepts. Evaluated on face value, the proposed model may be more directly interpreted in terms of what the ODQ measures. This will contribute to the understanding of the current situation within the company and result in effective interventions based on a more accurate understanding of the individual constructs and their interrelatedness. The proposed structural model, therefore, does not claim to replace the existing model that is based on sound organisational theory that is still relevant today, but there is a belief that it can be used in addition to the existing model to improve the understanding of line management and change agents.

### **Recommendations**

- Roodt (1992, p. 118) states that **OC** can be used as an umbrella construct to replace certain situational variables. Further research may be conducted to test this finding in terms of the ODQ. This may result in a shorter questionnaire that will deliver the same results. Such a model may also resemble the Nadler and Tushman (1977) Organisational Congruence Model more closely in terms of Input (Situational variables such as **ML**, **TC** and **TF**), Transformation (**OC**) and Output (**AC** and **SO**).
- The proposed structural model is limited to findings in a chrome manufacturing plant. It is recommendable to expose this model to other industries as well.
- This model was not subjected to possible different results caused by biographical differences. Further studies may investigate how the proposed model stands its ground in terms of differences in gender, age, race and levels of work.
- This study was limited to the six main constructs of the ODQ. A more comprehensive study may add benefit if the 34 subconstructs are included in a structural model.
- A SEM measurement model probably would have provided for a stronger test of the proposed structural model.

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